A Talk On

The Green Site Effect

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CDW

SPEAKERS

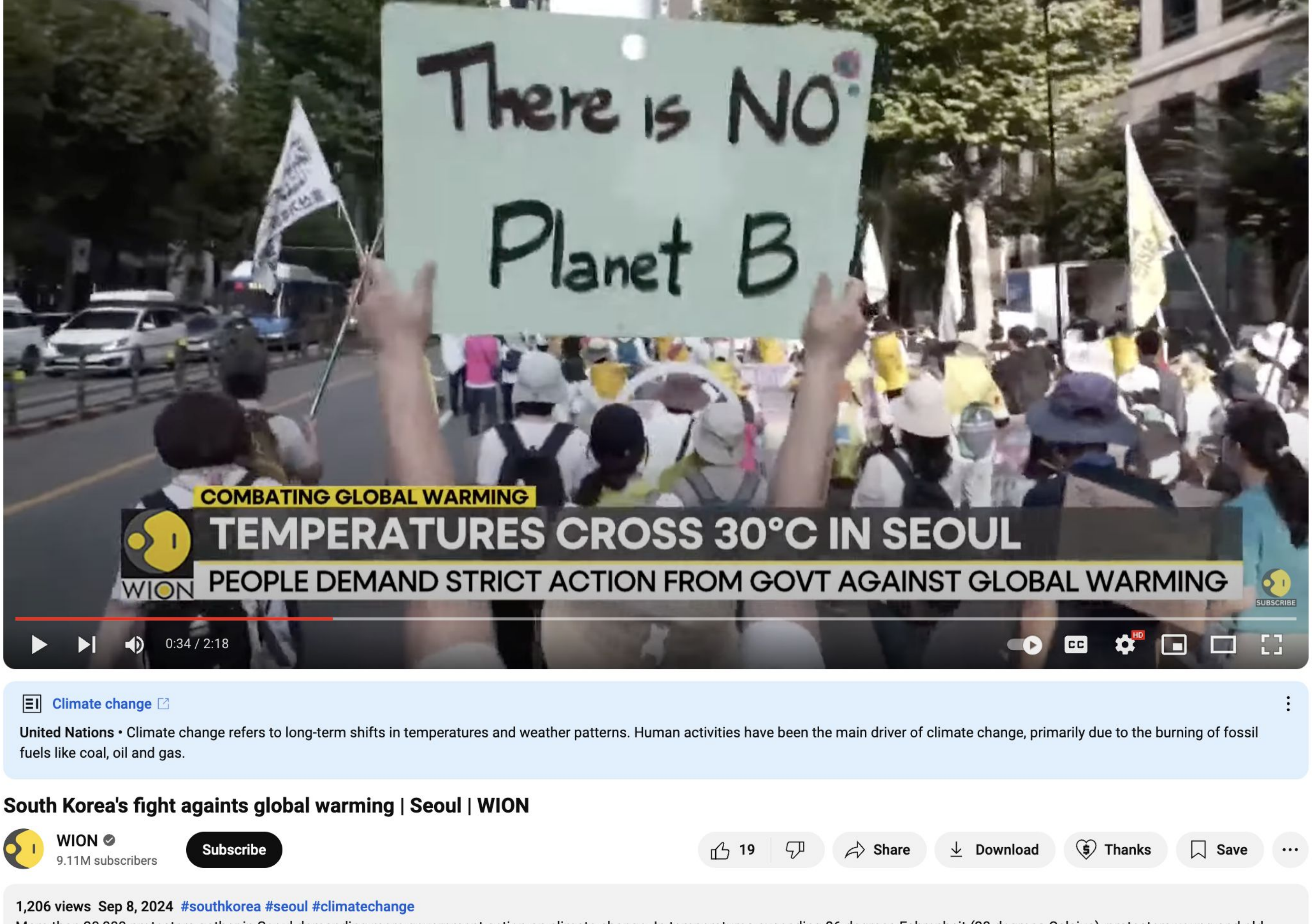
Carbon budget to limit

Global Warming to 1.5°C was

500 billion tons

of CO2 at the start of 2020

SIRIUS
A CDW COMPANY


There is NO
Planet B
COMBATING GLOBAL WARMING
TEMPERATURES CROSS 30°C IN SEOUL
WION
PEOPLE DEMAND STRICT ACTION FROM GOVT AGAINST GLOBAL WARMING
SUBSCRIBE
0:34 / 2:18
HD

Climate change

United Nations • Climate change refers to long-term shifts in temperatures and weather patterns. Human activities have been the main driver of climate change, primarily due to the burning of fossil fuels like coal, oil and gas.

South Korea's fight againts global warming | Seoul | WION

WION
9.11M subscribers

1,206 views Sep 8, 2024 #southkorea #seoul #climatechange

~3 – 4%

of global carbon footprint

=

or

SIRIUS
A CDW COMPANY

CLIMATE CHANGE ?

No Fossil Fuel

Afforestation

Reduce water waste

Subsidies

Going Vegan

Make Your Commute Green

Electric Vehicle

Energy Conservation

Energy Saving

Get Active and Vote

Recycle

Gadgets

Solar Energy at Home

Coal pollution mitigation

Use of renewable energies

Use LEDs

Reuse

Turning off lights and appliances when it is not in use

Use Less Heat and Air Conditioning

Repair

THINK A MINUTE

“

DANNY VAN KOOTEN

Dutch programmer

Founder of MailChimp for Wordpress

WHY PROGRAMMERS LIKE US?

“

DANNY VAN KOOTEN

Dutch programmer

Founder of MailChimp for Wordpress

Who reduced global emissions by an estimated 59000 kg CO_2 *per month*

- **Energy per kB** = 0.5 kWh / 1,000,000 kB = **0.0000005 kWh**.
- **1 kB of data** across **2 million websites** uses **1 kWh** of energy.
  - *A typical* ***LED light bulb*** *uses around* ***10 watts****. If you leave that light bulb on for* ***100 hours****, it would consume* ***1 kWh*** *of electricity.*
- If each website gets **10,000 visitors a month**, reducing 1 kB saves **10,000 kWh** of energy.
- In Europe, **10,000 kWh** of energy equals about **2,950 kg of CO2**.

QUICK MATH

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For 20kB, 20 kB * 2950 kg = 59000 kg of CO2 / month

*that's like flying from New York to Amsterdam and back **85 times**!*

QUICK MATH

DECARBONIZE INTERNET

No Fossil Fuel
Afforestation
Reduce water waste
Subsidies
Going Vegan
Make Your Commute Green
Electric Vehicle
Energy Conservation
Energy Saving
Get Active and Vote
Recycle
Gadgets
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Use Less Heat and Air Conditioning

THINK A MINUTE

Webpages are nearly **FOUR** times larger than they were in 2010

Data could consume **one fifth** of global electricity in next 4 years

NO.3

Global IT Sector energy demand ranks behind only two countries in the world - China and US

Interesting comparison about mail & post letter

Post letter –
Approximate CO2 Emission = 30g
Mail –
Approximate CO2 Emission = 4g
Consider
Sending 30 mails = 30 x 4 = 120g

If every adult in the UK sent one less “thank you” email, it could save 16,433 tonnes of carbon a year– the equivalent to taking 3,334 diesel cars off the road, according to energy company, OVO.

QUICK FACTS

OPTIMIZING APPLICATIONS - PHASES

Design

Development

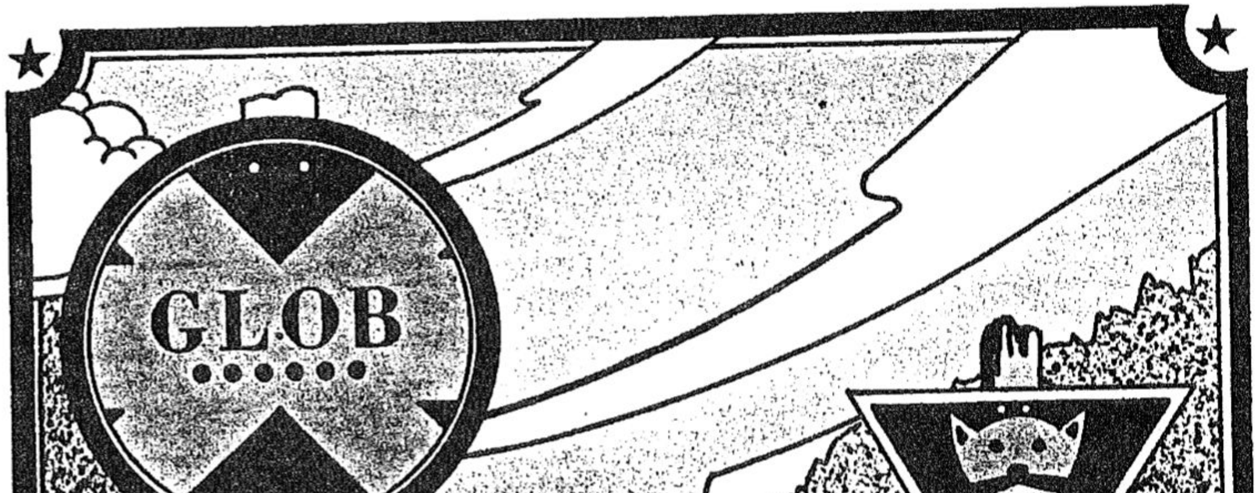
Hosting

From Datamation November 1981

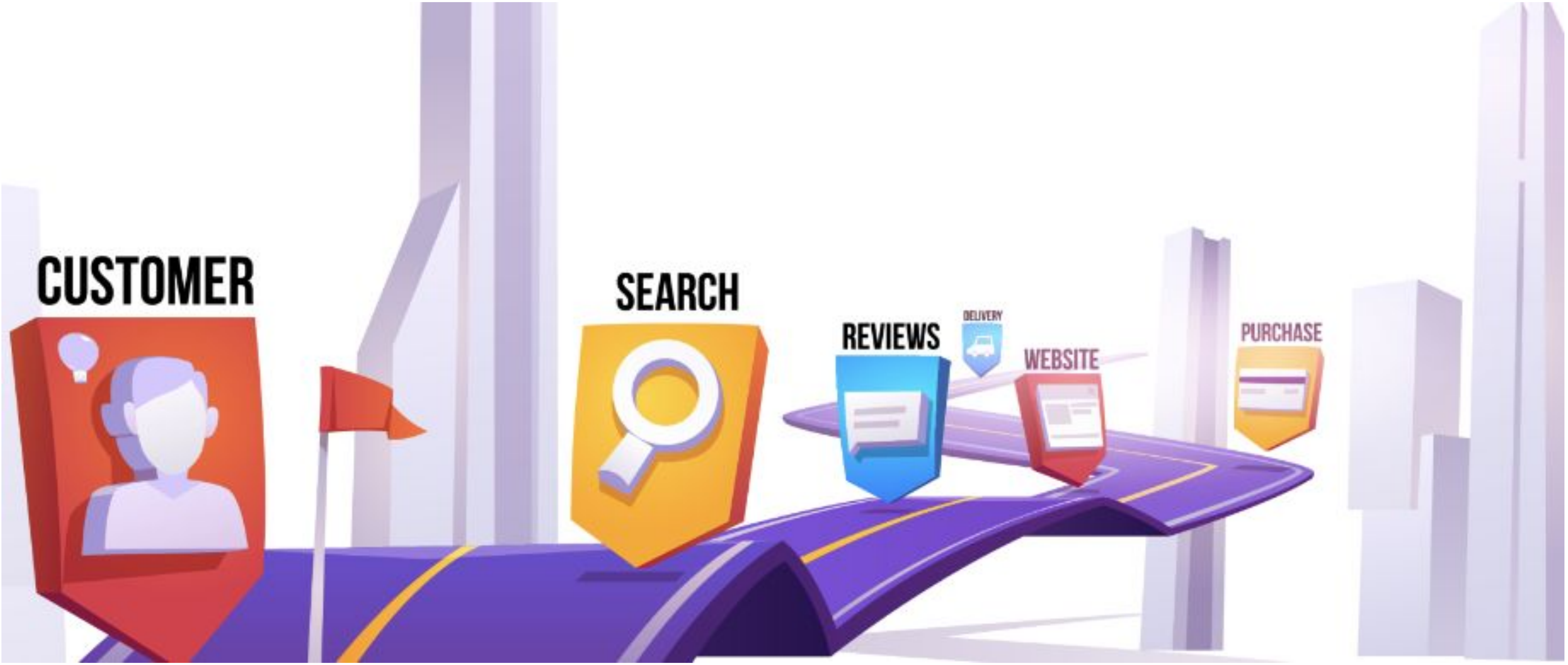
The system design is elegant but the user interface is not.

THE TROUBLE WITH UNIX

by Donald A. Norman

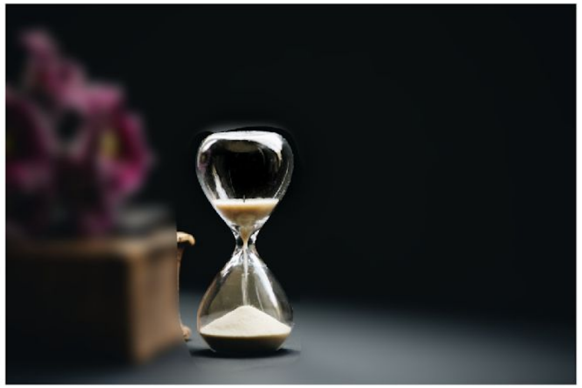


UNIX is a highly touted operating system. Developed at the Bell Telephone Laboratories and distributed by Western Electric, it has become a standard operating system in universities, and it promises to become a standard for micro and mini systems in homes, small businesses, and schools. But for all of its virtues as a system—and it is indeed an elegant system—UNIX is a disaster for the casual user. It fails both on the scientific principles of human engineering and even in just

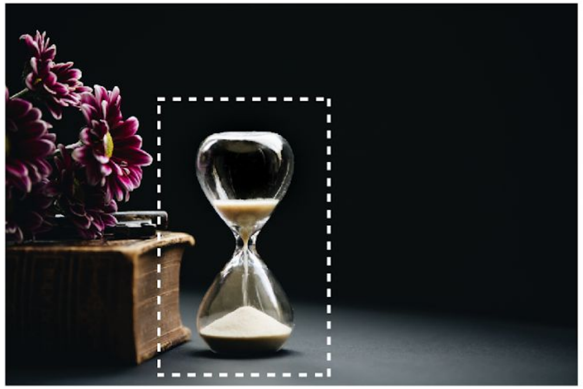


DESIGN PHASE - STREAMLINE USER JOURNEY

HD JPEG IMAGE
1.9 MB



BLURRED JPEG IMAGE
1 MB



CROPPED JPEG IMAGE
439 KB

WEBP
533 KB

AVIF
431 KB

Vectors,
CSS and
many

PROCESS OF MAKING IMAGES EFFICIENT

COST OF A PIXEL COLOR

WHITE	BLUE	DARK	BLACK
HIGHEST ENERGY	HIGH ENERGY THAN RED & GREEN	LOW ENERGY	NO ENERGY

COST OF A PIXEL COLOR

WHITE	**BLUE**	**DARK**	**BLACK**
HIGHEST ENERGY	HIGH ENERGY THAN RED & GREEN	LOW ENERGY	NO ENERGY

JavaScript bloat is more real today making websites heavier and slower..!

READY FOR A BIG REWRITE?

CO2.JS

WHAT OTHER OPEN SOURCE WE HAVE?

C
TS
node
JS
C++
Java
JS
MySQL
mongoDB
django
R
php
CodeIgniter
B
RAILS
$_
C#
ORACLE
A
cassandra

Bundle and Minification

Algorithms

Server-side Optimization

Data Structures

Caching

image usage

Minimalistic Styling Framework

Content Delivery Networks

DEVELOPMENT PHASE

The Choice of Bag

- Proper planning and smart execution
- Do not over engineer your website

The Toy Trap

- Avoid CSS Bloat & JS Bloat
- Encourage code reusability and modularity

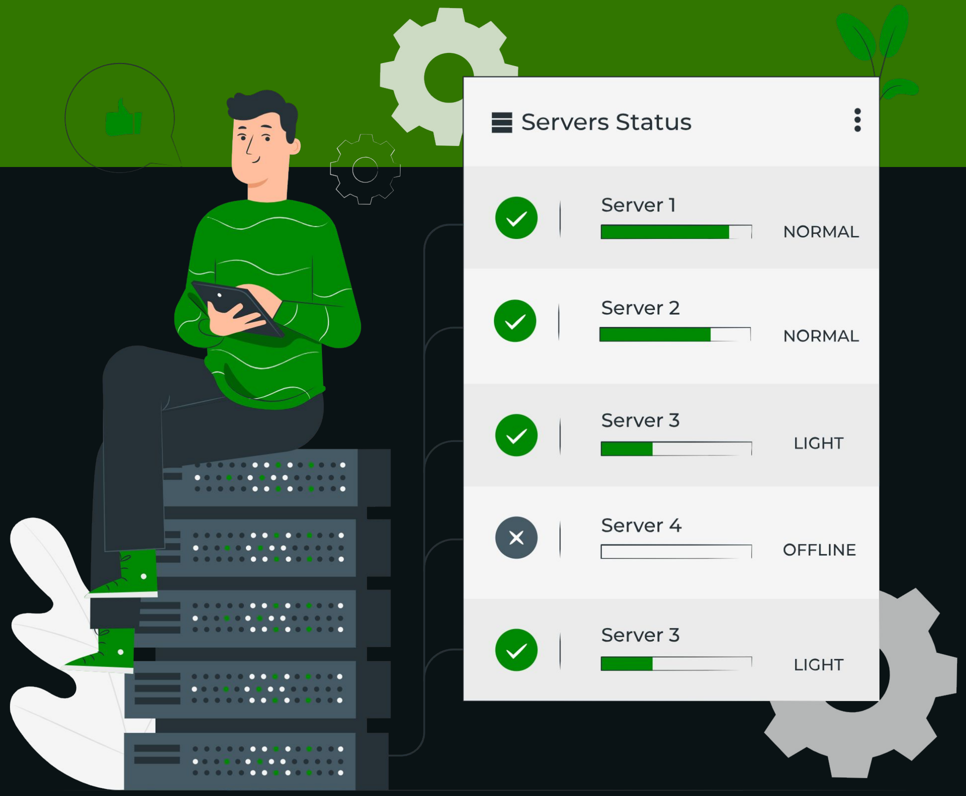
The Corn Flour Mix-Up

- Get the fundamentals right
- Make the right choice of frameworks & tools

DEVELOPMENT PHASE – THE BIG PICTURE

LIFECYCLE OF A CODE YOU WRITE

- Crafting in VS Code
- Commit to Git – Version Control, Like a Boss
- Build and Deploy – Code Takes Flight
- Stored in Servers – Your Code’s New Home
- Run on Servers – Code Goes to Work
- Cooling the Data Centers – Keeping Things Chill
- Energy Consumption – Powering Your Code
- Monitoring and Maintenance – The Code Babysitter
- Hardware Dependency – The Chip’s on You



- Choose green 🌳
- Keep your data near you
- Old is not always gold 🥇
- Scalable ⚖️ Instances

HOSTING PHASE

I DON’T CARE ONCE MY CODE WOKS FINE AFTER DEPLOYMENT

MY CODE, MY RESPONSIBILITY – POST DEPLOYMENT

DEPLOYMENT PHASE

CHECK IF YOUR SITE IS GREEN

Lists out the Green hosting Platforms available around the globe

Green Web Foundation

Analyses CO2 Emissions produced by a website.

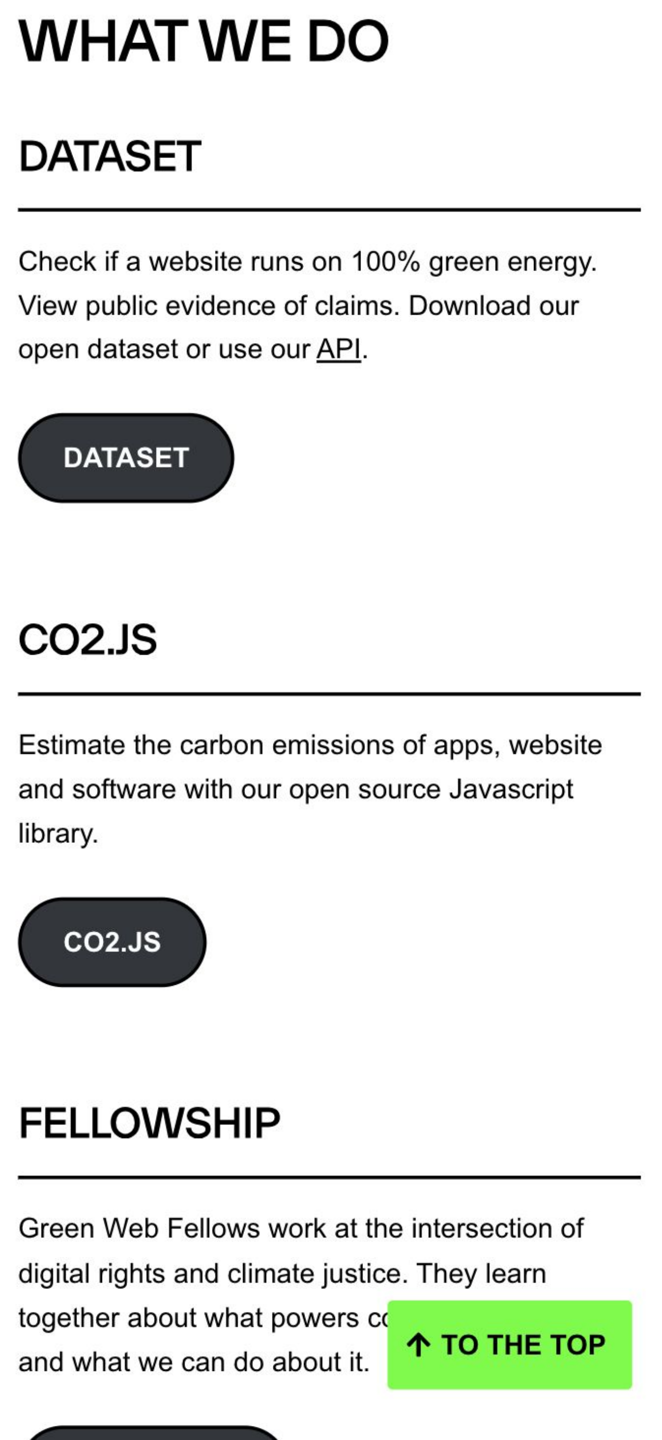
Website Carbon

Lists out the parameters that can be enhanced to make the website sustainable

Eco Grader

Tracks energy consumed while running an application

Safari DevTools Energy Meter



WHAT WE DO

DATASET

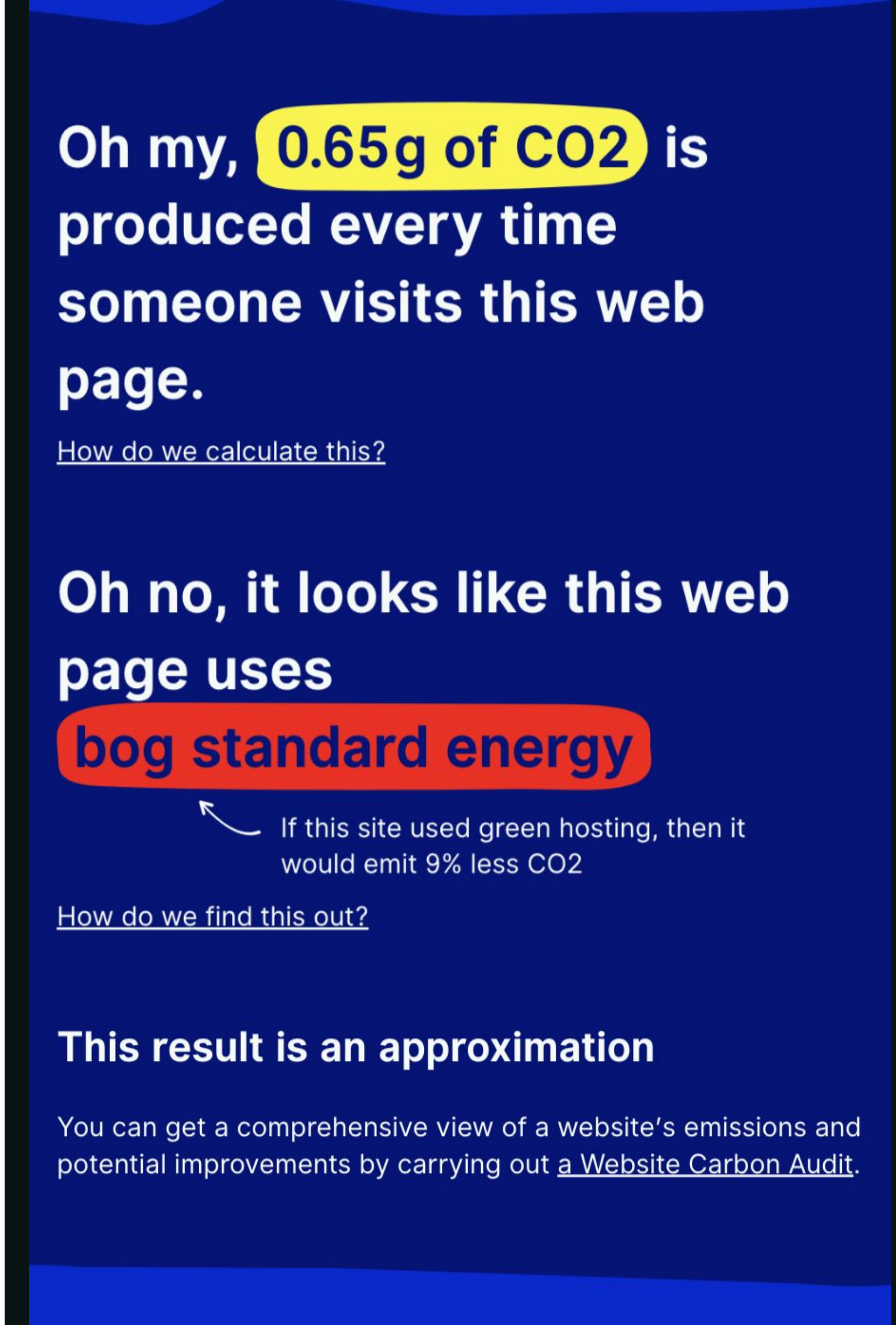
Check if a website runs on 100% green energy. View public evidence of claims. Download our open dataset or use our API.

CO2.JS

Estimate the carbon emissions of apps, website and software with our open source Javascript library.

FELLOWSHIP

Green Web Fellows work at the intersection of digital rights and climate justice. They learn together about what powers c
and what we can do about it.



Oh my, **0.65g of CO2** is produced every time someone visits this web page.

How do we calculate this?

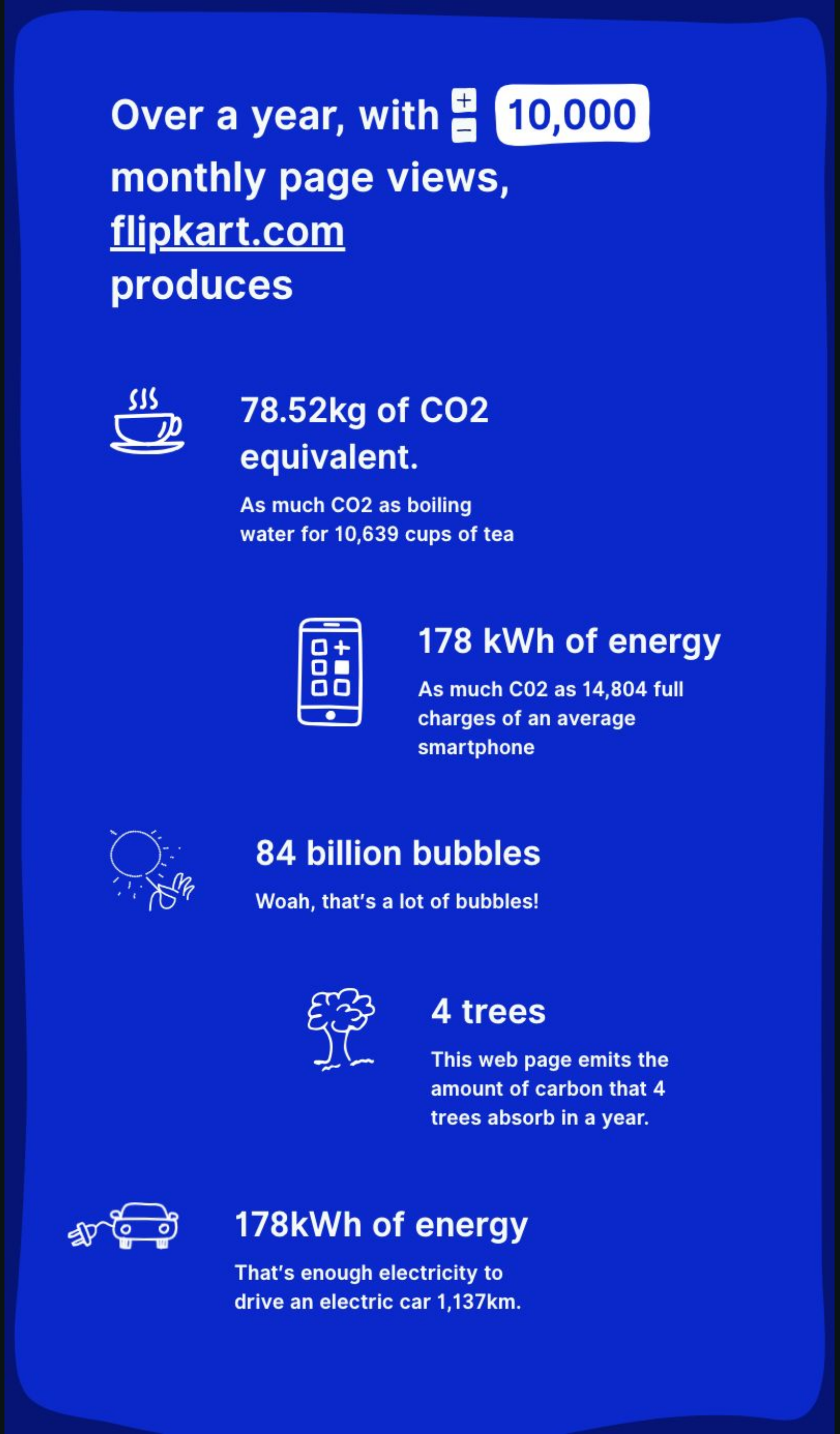
Oh no, it looks like this web page uses **bog standard energy**

If this site used green hosting, then it would emit 9% less CO2

How do we find this out?

This result is an approximation

You can get a comprehensive view of a website's emissions and potential improvements by carrying out a Website Carbon Audit.



Over a year, with 10,000 monthly page views, flipkart.com produces

78.52kg of CO2 equivalent.

As much CO2 as boiling water for 10,639 cups of tea

178 kWh of energy

As much C02 as 14,804 full charges of an average smartphone

84 billion bubbles

Woah, that's a lot of bubbles!

4 trees

This web page emits the amount of carbon that 4 trees absorb in a year.

178kWh of energy

That's enough electricity to drive an electric car 1,137km.

WIN - WIN - WIN

Users

Business

Earth

WHAT DO WE GET?

Walmart

amazon

Google
green

LOOK AROUND

Why not do now?

Reduce Brightness

Unsubscribe to unwanted newsletters

Download favorite music instead of streaming

Why so much browser tabs

Utilize dark mode

Eliminate paper printing if not necessary

WHAT FOSS CONTRIBUTORS CAN DO

- Promote sustainable practises
- Innovate for a Greener Future
- Be a Catalyst for Change
- Empower the Community with Knowledge

FOSS UNITED

Which do you think leaves high carbon footprints behind

- Solo car drive
- Watching a famous series on Netflix

Training a single AI model can emit as much carbon as _________ in their lifetimes

a) 5 cars
b) 50 kitchen baking energy
c) Biryani party for 100 people
d) Raising 100 cows

THINK ONCE

“With great power comes great responsibility”

THANK YOU

Open for Discussions

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